2/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124510

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION AND LUMINESCENCE SPECTRA WERE STUDIED AT 77DEGREESK, TO DET. THE PROBABILITY OF THE NONRADIATIVE TRANSFER IN NAPHTHALENE CRYSTALS WITH EQUAL AMTS. OF ANTHRACENE (DONOR) AND NAPHTHACENE (ACCEPTOR). THE LUMINESCENCE KINETICS SHOWS THAT THE PROBABILITY PARAMETER OF THE NONRADIATIVE TRANSFER P SUBDA CAN BE DETD. IN A STEADY STATE FROM THE FORMULA I SUB2 OVER I SUB1 EQUALS TAU P SUBDA, WHERE TAU IS THE RELAXATION TIME, I SUB1 IS THE INTENSITY OF LUMINESCENCE OF ANTHRACENE AT 412.5 NM, AND I SUB2 IS THE INTENSITY OF LUMINESCENCE OF NAPHTHACENE AT 532.7 NM. THE EXPTL. CURVE IN OVER I SUB1 OVER I SUB2 VS. IN R NEGATIVE PRIME1 GAVE A R NEGATIVE PRIME2.2 DEPENDENCE, FOR R EQUALS 3.6-51.2 NM (R EQUALS AV. DISTANCE BETWEEN NEIGHBORING ACCEPTOR AND DONOR MOLS.). AT 4-300DEGREESK, I SUB2 OVER I SUB1 DECREASES MONOTONICALLY WITH DECREASING TEMP.; THIS INDICATES THE PRESENCE OF PROCESSES IN WHICH THE LATTICE VIBRATIONS PLAY A ROLE. THUS, THE TRANSFER OF ELECTRONIC EXCITATION BETWEEN THE IMPURITY ANTHRACENE AND NAPHTHALENE MOLS. IN THE CRYSTAL LATTICE OCCURS WHEN R IS SMALLER THAN R NEGATIVE PRIME6 (AS IT FOLLOWS FROM THE THEORY) DUE TO THE PARTICIPATION OF LATTICE PHONONS IN THE TRANSFER. FACILITY: INST. FIZ., KIEV, USSR.

1/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--DIFFUSION OF ANTIMONY, PHOSPHORUS, AND BORON INTO SILICON FOR DIFFERENT SURFACE CONCENTRATIONS OF THE DIFFUSANT -U-

AUTHOR-(04)-USKOV, V.A., PAVLOV, P.V., KURILCHIK, E.V., PASHKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1504-10

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--SEMICONDUCTOR MATERIAL, BORON, ANTIMONY, PHOSPHORUS, SILICON, PHYSICAL DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0159 STEP NO--UR/0181/70/012/005/1504/1510

CIRC ACCESSION NO--AP0129415

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129415

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIFFUSION OF SB, P, AND B IN SI WAS STUDIED AND THE RESULTS COMPARED WITH THEORY. LIMITS ARE ESTABLISHED FOR APPLICABILITY OF THE AV. FIELD METHOD IN THE CASE OF IMPURITY DIFFUSION INTO A SEMICONDUCTOR. FACILITY: GOR'K. GOS. UNIV. IM. LOBACHEVSKOGO, GORKI, USSR.

UNCLASSIFIED

UDC 8.74

USSR

KURIL'CHIK, I. V., DRUZHININ, V. S.

"Some Problems of Organizing the Dictionary Library"

V sb. Ekon.-mat. metody i programmir. plan.-ekon. zadach (Mathematical Economic Methods and Programming Economic Planning Problems--collection of works), Moscow, 1972, pp 213-216 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V448)

Translation: The dictionary library of the main computation center of the USSR Gosplan is a set of files of dictionary information, technical storage media and services to insure functioning of it. The dictionary library is a part of the information library and is designated for storage and maintenance of the dictionary information files.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--POSSIBLE ANISOTROPY OF THE RADIO EMISSION OF CERTAIN QUASARS -U-

AUTHOR--KURILCHIK, V.N.

K

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO 1, 1970, P 27-31

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--QUASAR, RADIO EMISSION, ANISOTROPY, EMISSION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1737 STEP NO--UR/0033/70/047/001/0027/0031

CIRC ACCESSION NO--AP0115566
UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115566

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE NATURE OF THE ANOMALOUSLY FLAT EMISSION SPECTRA OF QUASARS ON THE BASIS OF AN ANALYSIS OF THE EMISSION SPECTRA OF QUASARS IN THE 3CP CATALOG, USING COMMON VALUES OF THE EXPONENT OF THE POWER LAW ENERGY SPECTRUM OF RELATIVISTIC ELECTRONS HAVING A SYNCHROTRON EMISSION MECHANISM. IT IS SHOWN THAT THE FLAT SPECTRA MAY RESULT FROM HIGHLY ANISOTROPIC RELATIVISTIC ELECTRON FLUEXES WHICH PROPAGATE FROM THE QUASAR NUCLEI IN A RELATIVELY STRONG (ON THE ORDER OF SEVERAL GAUSS) UNIFORM MAGNETIC FIELD HAVING THE PROPER ORIENTATION WITH RESPECT TO THE OBSERVER. FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr. AP0036350

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code
UR 0007

K

60111r Solubility of hydrated tin oxide complexes and cassiterite crystallization under hydrothermal conditions. Kuril'chikova, G. E.; Barsukov, V. L. (V. I. Vernadskii Inst. Geochem. Anal. Chem., Moscow, USSR). *Geokhimiya* 1970, (1), 35-42 (Russ). The soly. of Sn(IV) hydroxide in KOH and NaOH solns. depending on the pH at 100, 200 and 300° has been studied. The soly. decrease with temp. rise (up to 2×10^{-5} mole/l. Sn) is accompanied by a change of the compn. of the solid phase which at 100° corresponds to varlamoffite, $SnO_2.xH_2O$ and at 300° to cassiterite, SnO_2. By the method of soly. the complexing in the systems $Sn(OH)_4$-KOH-H_2O and $Sn(OH)_4$-NaOH-H_2O at 100° has been investigated. Neutral and alk. solutions (pH 7-11) complexes $Sn(OH)_i^{4-i}$ are formed. Stability consts. β_{ij} of these complexes: $\beta_{30} = 5.0 \times 10^{46}$, $\beta_{40} = 2.0 \times 10^{51}$, $\beta_{50} = 4.0 \times 10^{54}$, $\beta_{60} = 4.1 \times 10^{57}$, have been calcd. as well as the consts. of their hydrolysis: $K_{30} = 2.9 \times 10^{-9}$, $K_{40} = 8.7 \times 10^{-11}$, $K_{50} = 5.7 \times 10^{-10}$. BEJR

1/

18 di

REEL/FRAME
19721188

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--RAPID METHOD FOR DETERMINING SMALL AMOUNTS OF FLUORINE IN ROCKS -U-

AUTHOR--KURILCHIKOVA, G.YE.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 563-6

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--FLUORINE, ROCK, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0474 STEP NO--UR/0075/70/025/003/0563/0566

CIRC ACCESSION NO--AP0126226

UNCLASSIFIED

CIRC ACCESSION NO--AP0126226

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO DETN. 0.40-0.02PERCENT F IN ROCKS OF VARIOUS COMPN., THE SAMPLE IS DECOMPD. BY FUSION WITH NA SUB2 CO SUB3, THE INTERFERING ELEMENTS ARE REMOVED BY DOUBLE COPPTN. WITH FE(OH) SUB3 AT PH 7, AND F IS DETD. PHOTOMETRICALLY AT 582 NM BY THE DECREASE OF THE ABSORBANCE OF THE ARSENAZO I,AL COMPLEX AT CONST. SALT CONTENT AND PH 4.5. FACILITY: INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

USSR UDC: 621.315.592

GERSHENZON, Ye. M., IL'IN, V. A., KURILENKO, I. N., and LITVAK-GORSKAYA, L. B.

"Reluctance in n-InSb With a Conductance Impurity"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1866-1873

Abstract: The purpose of this paper is to set up a connection between the nature of the reluctance, as a function of the magnetic field and the temperature, and the electrical conductivity mechanisms of a semiconductor. The semiconductor used for the experiments described in the paper was n-InSb since all characteristic dependences of the reluctance can be realized in this material with comparatively weak magnetic fields. The transverse and longitudinal reluctances were investigated in the temperature range of 0.5-10° K and at magnetic fields of 0-5000 oersteds. A description of the preparation of the specimens is given together with a table of their parameters. Differences in the temperature behavior of the reluctance of specimens with various types of conductivity as well

1/2

USSR

GERSHENZON, Ye. M., et al., Fizika i tekhnika poluprovodnikov, No 10, [illegible],
pp 1868-1873

as both positive and negative reluctance in those specimens are discussed. The authors thank V. S. Ivlev for preparing the n-InSb specimens.

2/2

USSR UDC 536.664+541.183.12

NEKRYACH, YE. F., GOROKHOVATSKAYA, N. V., SAMCHENKO, Z. A., [illegible]

"Sorption-Thermochemical Study of Hydration of Macroporous KU-23 Sulfocation Exchange Resin"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol XXXVIII, No 6, 1972, pp 581-586

Abstract: The sorption and thermochemical methods were used to study the hydration of macroporous KU-23 sulfocation exchange resin in hydride and four salt forms (Li^+, Na^+, K^+, Ca^{2+}). The thermodynamic functions of the sorbed water were defined on the basis of the data obtained, and study was made of the nature of their variation during the hydration process. On the graphs of the differential entropy, there are three sections corresponding to different hydration mechanisms. The results of the studies are compared with data obtained earlier for the KU-cation exchange resin.

A study was made of the 20° isotherms of the sorption of water vapor taken on a vacuum sorption device with spring-quartz scales, the heats of wetting by water defined in an adiabatic calorimeter and the thermodynamic functions of the water sorbed by the ion forms of the macroporous KU-23 sulfocation exchange resin. The procedure for preparing and performing the measurements was described previously [M. Dubinin, et al., Fiziko-khimicheskiye osnovy protivogazovogo dela, Moscow, 1939; A. V. Dumanskiy, et al., Ukr. khim. zh., No 26, 389, 1960].

1/1

USSR UDC [537.226+537.311.33]:[537+535]

DEREVYANKO, A. I., and KURILENKO, O. D.

"Analysis of Dielectric Relaxation in Plane of Complex Permittivity"

V sb. Fiz.-khim. mekh. i liofil'nost' dispersn. sistem (Physicochemical Mechanics and Lyophilic Nature of Disperse Systems -- Collection of Works), Vyp. 2, Kiev, "Nauk, Dumka," 1971, pp 141-147 (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE593 from summary)

Translation: On the basis of the symbolic method a formal analysis is made of frequency dependences of the dielectric parameters of a substance, and the properties of equivalent circuits are discussed in terms of complex permittivity and complex specific electrical conductivity. Certain new properties of diagrams in the complex plane are established, and on this basis simple correlations for finding dispersion parameters are suggested.

- END -

CSO: 1862-W

1/1

USSR UDC 541.183.5

GOROKHOVATSKAYA, N. V., NEKRYACH, YE. F., and KURILENKO, O. D., Institute of Colloidal Chemistry and Chemistry of Water, Ukrainian Academy of Sciences

"Sorption of Water Vapor by the Strong-Acidic Cationite KU-5"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol XXXVII, No 8, 71, pp 785-789

Abstract: Hydration of the KU-5 sulfocationite, apart from immediate practical importance, is of definite theoretical interest. Comparison of the sorption properties of corresponding saline forms of KU-5 and KU-2 having the same fixated ions (—SO_3H) but different matrices will evidently show the effect which chemical structure of the skeleton and certain physico-chemical parameters of the ionite have on interaction between water molecules and active centers of the ionite.

The K^+, Na^+, Li^+, Ca^{2+}, Mg^{2+} and Al^{3+} forms of commerical KU-5 were tested, completeness of substitution being judged by the Al^{3+} form (analytical determination of amount of Al in the initial solution and following passage through the resin).

Water-vapor isotherms for KU-5 were similar in shape to those of other high-hydrophylic substances (initial sharp rise followed by more moderate rise

1/2

USSR

GOROKHOVATSKAYA, N. V., et al., Ukrainskiy Khimicheskiy Zhurnal, Vol XXXVII, No 8, 1971, pp 785-789

and final sharp rise). Evidently a monolayer of adsorbed water molecules is first formed at the most active centers, followed by hydration of less active centers and finally by capillary condensation of the vapor, accompanied by swelling of the ionite. Graphic representations of data obtained are included.

1/2 007 UNCLASSIFIED PROCESSING DATE--300CT70

TITLE--SWELLING OF STRONGLY ACID KU,1 AND WEAKLY ACID KB,4P2 CATION
EXCHANGERS IN DIOXANE WATER MIXTURES -U-

AUTHOR-(02)-LESHCHENKO, V.P., KURILENKO, O.D.

K

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(1), 46-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATION EXCHANGE RESIN, DIOXANE, WATER, ABSORPTION/(U)KU1 ION
EXCHANGE RESIN, (U)KB4P2 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1616 STEP NO--UR/0073/70/036/001/0046/0048

CIRC ACCESSION NO--AP0125238

UNCLASSIFIED

CIRC ACCESSION NO--AP0125238

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION OF DIOXANE BY THE H PRIME POSITIVE, LI PRIME POSITIVE, K PRIME POSITIVE, CU PRIME2 POSITIVE, AND FE PRIME3 POSITIVE FORMS OF KU,1 AND THE H PRIME POSITIVE FORM OF KB,4P2 FROM DIOXANE,H SUB2 O MIXTS. OF VARIOUS CONCNS. WAS DETD. THE SWELLING VARIED WITH THE CATION AND RESIN, AND WAS MAX. FOR A 50PERCENT SOLN. OF ALL THE FORMS OF KU,1 AND FOR A 75PERCENT SOLN. OF KB,4P2. AT THIS CONCN., THERE WAS NO PREFERENTIAL ABSORPTION OF DIOXANE.

FACILITY: KIEV. TEKHNOL. INST. PISHCH. PROM., KIEV, USSR.

K

USSR

OSTRENKO, V. YA., KURILENKO, V. KH., ONISHCHENKO, I. I.

"Defects in Hot Rolled Titanium Alloyed Tubing"

Dnepropetrovsk, Metallurgicheskaya I Gornorudnaya Promyshlennost',
No 1, Jan-Feb 70, pp 29-30

Abstract: Hot rolling of titanium tubes in automatic mills has resulted in defects on the external and internal surfaces of the tubing, particularly in the broaching of billets. The tendency of titanium to adhere to the tools is worsened by the high contact stresses under high temperature conditions and the significant slippage of the metal relative to the surface of the guiding lines in the broaching mill. Another no less important factor in the formation of defects is the gas saturation of the titanium and the formation of a brittle layer on the surface. The most frequent types of defects and conditions of their formation are described and illustrated. These defects increase consumption of metal in the manufacture of the tubing. At the present time, the formation of defects is reduced by more frequent replacement of
1/2

USSR

OSTRENKO, V. YA., et al., Metallurgicheskaya I Gornorudnaya Promyshlennost', No 1, Jan-Feb 70, pp 29-30

line guides. The authors performed an experiment involving blowing compressed air through the mill at 6 atm, pressure between operating cycles. This method was somewhat successful in reducing the frequency of defect formation.

2/2

USSR UDC 615.21+615.22):547.785.5].012.1

PECHENINA, V. M., MUKHINA, N. A., ABATUROVA, K. A., GHEREMSHCHIKOVA, L. P., MIKHAYLOVA, T. V., KURILENKO, V. M., and GILEV, A. P., Novokuznetsk Scientific Chemical-Pharmaceutical Research Institute

"Synthesis and Investigation of Some Benzimidazole Derivatives. V. Esters and Ethers of 1-Hydroxymethyl- and 1-(2-Hydroxyethyl)-benzimidazoles"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 5, No 10, Oct 71, pp 13-15

Abstract: To anaalkoxide obtained from 0.04 g-atom of metallic Na and corresponding alcohol, 0.02 mole of 1-chloromethylbenzimidazole hydrochloride is added with stirring, the mixture is left standing for several hours, the precipitate is removed by filtration, the filtrate is evaporated, and the oily residue is dissolved in ethanol. Upon addition of an alcoholic acid solution the respective salts of 1-hydroxymethylbenzimidazole ether is precipitated. To obtain esters of 1-(2-hydroxyethyl)benzimidazole, a previously described method was used. The compounds are moderately toxic, affecting slightly the central nervous system, lowering rectal temperature, and disturbed coordination in some animals. Specific physiological effects of select representatives are reported, but no general trend is noticeable.

1/1

UDC 621.732.413

USSR

KATUNIN, V. V., KURILIN, B. I.

"Analysis of a Resonator with a Contactless Plunger"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 102-110 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B147)

Translation: Expressions are obtained for the Q-factor of the resonance impedance and resonance equation of a resonator. There are 6 illustrations and a 5-entry bibliography.

1/1

UDC 534.26

USSR

KURILKIN~~, Yu. V., an~~d LYAMSHEV, L. M., Acoustics Institute, Academy of Sciences USSR

"Reflection of Ultrasonic Waves by a CdSe Crystal in Water"

Moscow, Akusticheskiy Zhurnal, Vol 27, vyp 1, 1971, pp 74-78

Abstract: This article cites the results from an experimental investigation of the reflection of ultrasonic waves by a CdSe crystal plate in water, for purposes of clarifying the influence of the interaction between elastic oscillations and conduction electrons in a crystal on the reflective characteristics of ultrasonic waves.

The tests were conducted at a frequency of 5 mHz under pulsed conditions with a pulse duration from 20 to 100 μsec and a pulse repetition frequency of 200 Hz. A rectangular plate 3.5 X 3 X 9 mm^3 in size, was cut so that its greatest dimension coincided with the optical axis of the crystal. The polar characteristics of the reflection from the plate were measured in the plane of the optical axis of the crystal.

1/2

USSR

KURILKIN, Yu. V., and LYAMSHEV, L. M., Akusticheskiy Zhurnal, Vol 27, vyp 1, 1971, pp 74-78

It was established that the amplitude of the echo-signal reflection is decreased by illuminating the crystal. When a drift electric field is applied on the crystal, the amplitude of the reflected echo-signal increases, then fluctuates, and diminishes.

The results cited here characterize the attenuation of normal waves in a photoconducting crystal, when the waves are propagated along the optical axis, as a function of crystal illumination.

It is obvious from the article that because of the interaction with conduction electrons, the acoustic waves may either be amplified or absorbed in a liquid when reflected from plates of piezosemiconducting crystals.

The article contains 7 figures; six literature references are cited.

Magnetohydrodynamics

USSR

KURILKO, V. I.; et al

"The Acceleration of Electrons in the Slow Wave Field of a Plasma Waveguide"

Moscow, Atomnaya Energiya; March, 1973; pp 181-4

ABSTRACT: This work concerns an experimental investigation of electron beam interaction with a slow wave field of limited amplitude in an anisotropic plasma waveguide. The capture of injected beam particles in this waveguide was observed. The dependence of the parameters of the main beam of captured particles on plasma characteristics was measured.

Accelerated electrons of average energy W_{acc}= 100 kev and current I_{acc}= 0.5 a were obtained for an injection energy W_{inj}= 10 kev and I_{inj}= 3 a when v_{ph}= const < C. It is shown that the dependence of the accelerated beam current, average energy, and energy spectrum width on the value of wave phase velocity and UHF power level agrees well with theory.

The article includes six figures. There are nine bibliographic references.

USSR

KRAMSKOY, G. D.; KURILKO, V. I.; SHENDRIK, V.A. (Physicotechnical Institute of the Ukrainian Academy of Sciences, Khar'kov)

"Theory of Lateral Instability of a Beam in the Resonator Section of a Linear Electron Accelerator"

Kiev, Ukrainskiy Fizicheskiy Zhurnal; October, 1972; pp 1608-16

ABSTRACT: The authors develop a theory of the lateral instability of a relativistic electron beam caused by the effect of a build-up, in the resonator section of an accelerator, of a spontaneous Corenkov radiation of beam clusters on a defocussing, axially unsymmetric wave. A problem concerning deviation of the beam when acted upon by the wave is solved by a self-consistent approximation. Analytic expressions are found which determine the dependence of a lateral shift of a cluster on its number, the parameters of the accelerator (geometry, quality factor, intensity of the accelerating field), energy, and beam current. It is shown that in the case of the resonator section a build-up of lateral instability has a threshold character: when the beam current exceeds some threshold value, the lateral displacement of the beam increases exponentially with time. The analytic variations of the threshold currents with the parameters of the accelerator, injection energy, and intensity of the accelerating field are found.

The theoretical results agree satisfactorily with the experimental data.

1/1

- END -

USSR UDC 533.916

SHVETS, O. M., KURILKO, V. I., TOLOK, V. T.

"Stochastic High-Frequency Ion Heating"

Kiev, Fizika plasmy i problemy upravlyayemogo termoyadernogo sinteza, 1971, Naukova dumka, pp 86-90

Abstract: Although the authors admit the efficiency of obtaining high-energy ions in a dense plasma by heating the latter with a high-frequency field, they find in that method the objection that the energy introduced into the plasma by a monochromatic high-frequency field is in the form of regular collective ion motion in the field of the wave. There is then no relative motion and collision of the ions, and a conversion of this regular collective ion motion into chaotic motion through thermalization of the energy introduced into the plasma becomes necessary. The article lists three fundamental effects leading to the thermalization and indicates how they can be achieved theoretically; they are: paired collisions of particles with various charge-mass ratios; collisionless collective attenuation caused by Cerenkov or Doppler

USSR

SHVETS, O. M. et al, Fizika plasmy i problemy upravlyayemogo termoyadernogo sinteza 1971, Naukova dumka, pp 86-90

absorption of the wave energy by particles in resonance with the wave; nonlinear effects causing fractionalization of the energy of the original wave. Conditions to be met to obtain these effects are found.

USSR UDC 533.951.2/.3

KURILKO, V. I., ULLSHMID, I. V.

"Nonlinear Theory of Čerenkov Excitation of a Plasma by a Modulated Beam of Charged Particles"

V sb. Fiz. plazmy i probl. upravlyayemogo termoyadern. sinteza. Vyp. 1 (Plasma Physics and Problems of Controlled Thermonuclear Synthesis. No 1 --collection of works), Kiev, "Nauk. dumka", 1971, pp 109-119 (from RZh--Mekhanika, No 10, Oct 71, Abstract No 10B117)

Translation: A nonlinear theory is developed for Čerenkov interaction between a modulated beam of charged particles and a slow-wave resonator for the case where the rise in amplitude of the Čerenkov field in the resonator is stabilized by the reverse effect of the field on the motion of beam particles. The characteristic rise time and maximum amplitude of the field are calculated. The physical meaning of the results is discussed. Bibliography of eleven titles. Authors' abstract.

1/1

Nitrogen Compounds

USSR

UDC 615.225.2:547.567.33.012.1:542.9

SHVEDOV, V. I., ~~ZHILO, G. N.~~, and GRINEV, A. N., All-Union Scientific Research Institute of Pharmaceutical Chemistry imeni S. Ordzhonikidze, Moscow

"Research in the Field of Quinones. XLVIII. Synthesis of Derivatives of 2-Benzyl-5-oxyindole and 2-Benzyl-5-oxybenzindole"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 9, Sep 70, pp 7-12

Abstract: The article suggests a method for the synthesis of derivatives of 2-benzyl-3-carbomethoxy-5-oxyindole and 2-benzyl-3-carbomethoxy-5-oxybenzindole, which are intermediates in the synthesis of structural analogs of serotonin. The derivatives are obtained by condensation of p-benzoquinone or 1,4-naphthoquinone with the methyl ester of N-substituted or unsubstituted β-amino-γ-phenylcrotonic acid. Methylation of the derivatives with dimethyl sulfate in an alkaline solution converts them to derivatives of 2-benzyl-3-carbomethoxy-5-methoxyindole and 2-benzyl-3-carbomethoxy-5-methoxybenzindole. Hydrolysis of the

1/2

USSR

SHVEDOV, V. I., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 9, Sep 70, pp 7-12

latter gives corresponding 2-benzyl-3-carboxy-5-methoxyindoles and 2-benzyl-3-carboxy-5-methoxybenzindoles. IR and UV spectra were taken of the resultant compounds.

2/2

USSR

UDC 615.31:547.759.327.012.1:542.9

SHVEDOV, V. I., KURILO, G. N., GRINEV, A. N., All-Union Scientific Research Chemico Pharmaceutical Institute imeni Sergo Ordzhonikidze, Moscow, Ministry of Health USSR

"Synthesis of 2-Arylindole Derivatives"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol IV, No 3, 70, pp 11-15

Abstract: Use was made of the intramolecular cyclization of 2-arylindolyl-3-acetic acids to synthesize 1,2-benzcarbazole derivatives. Introduction of an aryl chromophore into the indole heterocycle increases the absorption intensity and moves the absorption bands toward the long-wave spectral region. The type of substituent in the aryl chromophore has no effect on the position of the absorption maxima. Only two of the eighteen derivatives exhibited antiviral activity in vitro against A type PR-8 strain.

1/1

USSR

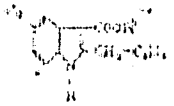
UDC: 547.757.07

SHVEDOV, V. I., KURILO, G. N., GRINEV, A. N., All-Union Scientific Research Chemico Pharmaceutical Institute imeni Sergo Ordzhonikidze, Moscow, Ministry of Health USSR

"A Method of Producing Indole Derivatives"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, 4 Feb 70, p 29, patent No 262906, filed 12 Feb 68

Translation: This Author's Certificate introduces a method of producing indole derivatives of the formula



where R is H, Alk, Ar; R' is Alk, H; R'' is H, Alk. p-Benzoquinone is interacted with -phenyl- -aminocrotonic acid ester or its derivative in an inert solvent such as dichloroethane, and the resultant product is isolated by conventional methods or methylated by dimethyl sulfate.

1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--INDOLE DERIVATIVES -U-

AUTHOR-(03)-SHVEDOV, V.I., KURILO, G.N., GRINEV, A.N.

COUNTRY OF INFO--USSR

K

SOURCE--U.S.S.R. 262,906

REFERENCE--OTKRYTIYA, OZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(7)

DATE PUBLISHED--04FEB70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, MOLECULAR STRUCTURE, INDOLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1777 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132043

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0132043

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INDOLE DERIVS. (I, R EQUALS H, ALKYL, ARYL; R PRIME1 EQUALS ALKYL, H; R PRIME2 EQUALS H, ALKYL) WERE OBTAINED BY TREATING P BENZOQUINONE WITH GAMMA PHENYL BETA AMINO CROTONIC ACID ESTER OR A DERIV. IN AN INERT SOLVENT, SUCH AS DICHLOROETHANE. THE RESULTING PRODUCT WAS SEPD. OR METHYLATED BY ME SUB2 SO SUB4. FACILITY: ORDZHONIKIDZE, S., ALL UNION SCIENTIFIC RESEARCH CHEMICAL PHARMACEUTICAL INSTITUTE.

UNCLASSIFIED

1/3 010 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SYNTHESIS OF 2,ARYLINDOLE DERIVATIVES -U-

AUTHOR-(02)-SHYEDOV, V.I., KURILO, G.N.

K

COUNTRY OF INFO--USSR

SOURCE--KHIM. FARM. ZH. 1970, 4(3), 11-15

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INDOLE DERIVATIVE, ARYL RADICAL, CHEMICAL SYNTHESIS, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0292 STEP NO--UR/0450/70/004/003/0011/0015

CIRC ACCESSION NO--AP0119284
UNCLASSIFIED

CIRC ACCESSION NO--AP0119284

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. I AND II WERE PREPD. 3PRIME, 4PRIME, DIMETHOXYACETOPHENONE PHENYLHYDRAZONE (40.5 G) AND 66 G 100PERCENT H SUB3 PO SUB4 GAVE 90PERCENT II (R PRIME1 EQUALS R PRIME2 EQUALS H), M. 190-1DEGREES (MEOH ME SUB2 CO). METHYLATION OF 2 PHENYLINDOLE (III) GAVE 99.5PERCENT I (R PRIME1 EQUALS ME, R PRIME2 EQUALS H) (IV), M. 99-100DEGREES (MEOH). REACTION OF III AND IV WITHME SUB2 NH AND H SUB2 CO GAVE, RESP., 69PERCENT I (R PRIME1 EQUALS H, R PRIME2 EQUALS ME SUB2 NCH SUB2) (V), M. 129-30DEGREES (MEOH), AND 83PERCENT I (R PRIME1 EQUALS ME, R PRIME2 EQUALS ME SUB2 NCH SUB2) (VI), M. 199-200DEGREES. TREATMENT OF V AND VI WITH MEI YIELDED, RESP., 99PERCENT V METHIODIDE (VII), M. 200-1DEGREES (DECOMPN.), AND 97.5PERCENT VI METHIODIDE (VIII), M. 185-6DEGREES. BOILING VII AND VIII WITH KCN IN AQ. DIOXANE YIELDED 92.5PERCENT I (R PRIME1 EQUALS H, R PRIME2 EQUALS CH SUB2 CN) (IX), M. 117-18DEGREES (MEOH), AND 95PERCENT I (R PRIME1 EQUALS ME, R PRIME2 EQUALS CH SUB2 CN) M. 96-7DEGREES (DECOMPN.). METHYLATION OF II (R PRIME1 EQUALS H, R PRIME2 EQUALS CH SUB2 CN) YIELDED 97.7PERCENT II (R PRIME1 EQUALS ME, R PRIME2 EQUALS CH SUB2 CN), M. 139-40DEGREES (MEOH). DRY HCL WAS PASSED 4 HR THROUGH 1.3 G IX IN 12 ML ABS. ETOH AND 8 ML ET SUB2 O TO YIELD 91PERCENT I (R PRIME1 EQUALS H, R PRIME2 EQUALS CH SUB2 CO SUB2 ET), M. 82-2.5DEGREES (ME SUB2 CO). HEATING IX WITH POLYPHOSPHORIC ACID GAVE 76PERCENT I (R PRIME1 EQUALS H, R PRIME2 EQUALS CH SUB2 CONH SUB2), M. 198-9DEGREES (ME SUB2 CO).

3/3 010

CIRC ACCESSION NO--AP0119284

ABSTRACT/EXTRACT--ALK. HYDROLYSIS OF APPROPRIATE NITRILES AND AMIDES YIELDED 76PERCENT I (R PRIME 1 EQUALS H, R PRIME2 EQUALS CH SUB2 CO SUB2 H), M. 177-8DEGREES, 92.8PERCENT I (R PRIME1 EQUALS ME, R PRIME2 EQUALS CH SUB2 CO SUB2 H) (X), M. 145-6DEGREES, 93.5PERCENT II (R PRIME2 EQUALS CH SUB2 CO SUB2 H), M. 156-7DEGREES. X WAS CONVERTED TO ACID CHLORIDE, WHICH WITH C SUB6 H SUB6 AND ALCL SUB3 GAVE 40.6PERCENT I (R PRIME1 EQUALS ME, R PRIME2 EQUALS CH SUB2 COPH), M. 118-19DEGREES (ETOAC).

FACILITY: VSES. NAUCH. ISSLED. KHIM. FAR. INST. IM. ORDZHONIKIDZE, MOSCOW, USSR.

USSR

VESELYANSKIY, YU. S., GORUSHKINA, L. P., ZAKHAROV, V. Y., KURILO, YU. P., and SOSOV, A. I., Ukrainian Correspondence Polytechnic Institute

"Method of Studying the Microrelief of Fractures in an Al-Al$_3$Ni Composite"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 6, Jun 73, pp 720-721

Abstract: The fractures of samples of an Al-Al$_3$Ni composite material produced by directed crystallization of an Al-Ni eutectic alloy were studied. The samples, 5-6 mm in diameter and 60-70 mm long, were grown in vacuum by the Chokhral'skiy method at crystallization rates of 30-500 mm/hr. The samples had a unidirectional fibrous structure consisting of an aluminum matrix reinforced with Al$_3$Ni fibers with a diameter of 1 to 0.2 microns. Microsections of fractures revealed tiny rods of the reinforcing phase, free from the matrix material. This proved that cracks are propagated not only across the fibers, breaking them, but along the fibers into the fiber-matrix interface. 1 figure, 1 bibliographical reference.

1/1

UDC 669.24 669.018.[illegible]

USSR

KOTOV, V. F., KURILO, YU. P., SOMOV, A. I., and SHVARTS, V. I., Physico-technical Institute, Academy of Sciences Ukrainian SSR

"Microstructure and Mechanical Properties of an Eutectic Composition Ni_3Al - Ni_3Nb"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 669-672

Abstract: The aim of this work was to study the effect of controlled crystallization of Ni_3Al - Ni_3Nb alloy on its mechanical properties. Controlled crystallization was applied during drawing of an ingot from a melt in vacuum ($1 - 5 \cdot 10^{-6}$ mm Hg), using a pure crystalline Ni as seed charge. The crystallization rate varied from 21 to 98 mm/hour, with the temperature gradient in the melt from 80 to 150°C/cm. The tensile strength of samples prepared by this method was 140-180 kg/mm^2 at room temperature. Changes in tensile properties were due to variations in the alloy crystal structure, namely, to disorientation of Ni_3Al and Ni_3Nb lamellas. When this disorientation was extensive, the tensile properties decreased to 100 kg/mm^2. Appearance of primary crystals of either Ni_3Al or Ni_3Nb phases decreased the tensile properties to 50-100 kg/mm^2. Tensile properties of samples tested under vacuum conditions were somewhat higher compared with those at room temperature. When the testing temperature was high, this difference amounted to 14 kg/mm^2 at 1100°C. This is attributed

1/2

USSR

KOTOV, V. F., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 669-672

to oxidation of the alloy in atmospheric oxygen. The stress-rupture strength of samples tested in argon at 1100°C for 100 hours was $\sim$16.5 kg/mm^2, and it was $\sim$ 15 kg/mm^2 and $\sim$24 kg/mm^2 when tested in atmosphere at 1100 and 1000°C, respectively. Mechanical properties of Ni_3Al - Ni_3Nb alloy produced by the controlled crystallization exceeded those of ordinary nickel alloys in many respects.

UDC 669.71:539.53

USSR

KURILO, YU. P., SOMOV, A. I., TORTIKA, A. S., and CHERNYY, O. V.
Physicotechnical Institute, Academy of Sciences Ukrainian SSR

"Morphology of Structure and Microhardness of Al-(Ni,Cu,Be,Fe,Co) Eutectic Compositions"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 347-354

Abstract: This work was devoted to studying the anisotropy of eutectic microhardness and the effect of dispersity of eutectic phases on microhardness and its anisotropy for the following eutectic systems: $Al-Al_3Ni$, $Al-Al_2Cu$, Al-Be, $Al-Al_3Fe$, $Al-Al_9Co_2$. It was found that in the directed crystallization of the above eutectic systems, a sharp anisotropy of microhardness can be observed which is expressed in both a change in the shape of the pyramidal penetrator impressions (type I anisotropy) and in the difference of absolute microhardness values in the longitudinal and transverse (with respect to direction of crystallization) cross sections of the sample (type II anisotropy). The micro hardness of a eutectic composition was found to be inversely proportional to the square root of the distance between the particles of the high-strength dispersed phase, which is explained by the effect of retarding the process of plastic deformation by interphase surfaces, leading to strengthening of the matrix phase. No

1/2

USSR

KURILO, YU. P., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 2,
Feb 73, pp 347-354

substantial effect of eutectic structure dispersity on microhardness anisotropy was detected. 8 figures, 2 tables, 9 bibliographic references.

UDC 669.71:539.53

USSR

KURILO, YU. P., SOMOV, A. I., TORTIKA, A. S., and CHERNYY, O. V.
Physicotechnical Institute, Academy of Sciences Ukrainian SSR

"Morphology of Structure and Microhardness of Al-(Ni,Cu,Be,Fe,Co) Eutectic Compositions"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 347-354

Abstract: This work was devoted to studying the anisotropy of eutectic microhardness and the effect of dispersity of eutectic phases on microhardness and its anisotropy for the following eutectic systems: Al-Al_3Ni, Al-Al_2Cu, Al-Be, Al-Al_3Fe, Al-Al_9Co_2. It was found that in the directed crystallization of the above eutectic systems, a sharp anisotropy of microhardness can be observed which is expressed in both a change in the shape of the pyramidal penetrator impressions (type I anisotropy) and in the difference of absolute microhardness values in the longitudinal and transverse (with respect to direction of crystallization) cross sections of the sample (type II anisotropy). The micro hardness of a eutectic composition was found to be inversely proportional to the square root of the distance between the particles of the high-strength dispersed phase, which is explained by the effect of retarding the process of plastic deformation by interphase surfaces, leading to strengthening of the matrix phase. No

1/2

USSR

KURILO, YU. P., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 347-354

substantial effect of eutectic structure dispersity on microhardness anisotropy was detected. 8 figures, 2 tables, 9 bibliographic references.

2/2

...um at
...s accompanie...
On friction of
..., close mass-spectro...
...lted. Two figures, one ...

2/2

- 32 -

UDC 621.892:546.77'22:621.793

USSR

KURILOV, G. V., UDOVENKO, V. F., YUKHNO, T. P., SENTYURIKHINA, L. N., and [illegible]UBARSKIY, I. M., Physicotechnical Institute of Low Temperatures [illegible] the Academy of Sciences UkrSSR, Char'kov

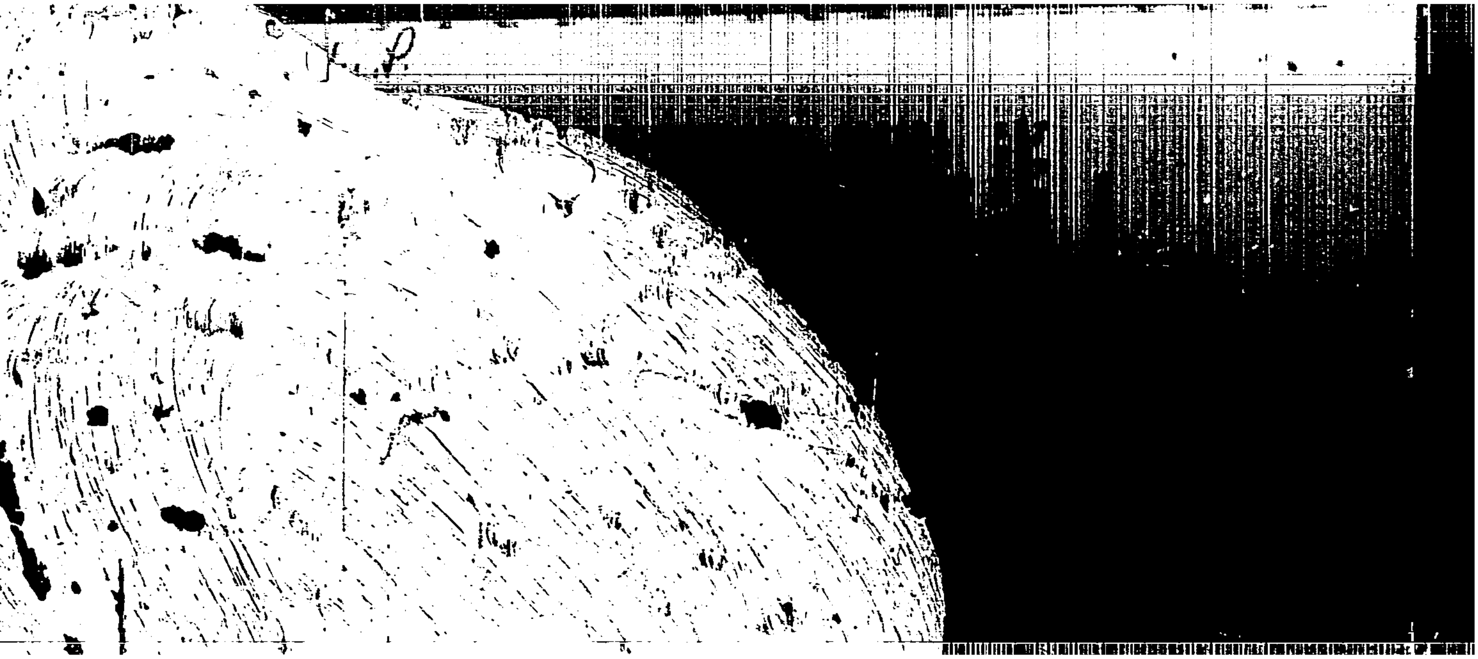
APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630009-

"Method for Investigation of Solid Lubrication Coats on MoS2 Base"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 1, 1973, pp [illegible]8-50

Abstract: A method was developed for the investigation of solid lubrication coats on MoS2 base (All-Union Scientific Research Institute of the Petroleum Industry, VNII NP —209, —212, —213, —229, and —230) on friction under atmospheric conditions and in deep vacuum at low (-90-196 oC) and room temperatures. The gaseous products separating on friction were analyzed on the MSKh-3A mass-spectrometer located in the vacuum chamber. The

energy is a flat dielectric window in the [illegible]
connected on both sides to rectangular waveguides. A disadvantage of the
system is the possibility of breakdown of the window on resonance frequencies
of modes allowed by the system; this requires proper selection of the
working range. An important factor which has its effect on resonance fre-
quencies is the reactivity of the coupling between circular and rectangular
guides. This effect is analyzed. It is shown that such a coupling elimi-
nates degeneration of the dominating mode, resulting in additional resonance.
The reactivity of the junction shifts resonances of H modes toward shorter
waves. Recommendations are given on selecting the working range. Eight
illustrations, one table, bibliography of five titles. N. S.



USSR

KURILO, YU. P., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 347-354

substantial effect of eutectic structure dispersity on microhardness anisotropy was detected. 8 figures, 2 tables, 9 bibliographic references.

2/2

USSR

UDC 669.71:539.53

KURILO, YU. P., SOMOV, A. I., TORTIKA, A. S., and CHERNYY, O. V.
Physicotechnical Institute, Academy of Sciences Ukrainian SSR

"Morphology of Structure and Microhardness of Al-(Ni,Cu,Be,Fe,Co) Eutectic Compositions"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 347-354

Abstract: This work was devoted to studying the anisotropy of eutectic microhardness and the effect of dispersity of eutectic phases on microhardness and its anisotropy for the following eutectic systems: Al-Al_3Ni, Al-Al_2Cu, Al-Be, Al-Al_3Fe, Al-Al_9Co_2. It was found that in the directed crystallization of the above eutectic systems, a sharp anisotropy of microhardness can be observed which is expressed in both a change in the shape of the pyramidal penetrator impressions (type I anisotropy) and in the difference of absolute microhardness values in the longitudinal and transverse (with respect to direction of crystallization) cross sections of the sample (type II anisotropy). The micro hardness of a eutectic composition was found to be inversely proportional to the square root of the distance between the particles of the high-strength dispersed phase, which is explained by the effect of retarding the process of plastic deformation by interphase surfaces, leading to strengthening of the matrix phase. No

1/2

USSR

KURILO, YU. P., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 347-354

substantial effect of eutectic structure dispersity on microhardness anisotropy was detected. 8 figures, 2 tables, 9 bibliographic references.

2/2

USSR UDC 621.892:546.77'22:621.793

KURILOV, G. V., UDOVENKO, V. F., YUKHNO, T. P., SENTYURIKHINA, L. N., and LYUBARSKIY, I. M., Physicotechnical Institute of Low Temperatures of the Academy of Sciences UkrSSR, Char'kov

"Method for Investigation of Solid Lubrication Coats on MoS_2 Base"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 1, 1973, pp 46-50

Abstract: A method was developed for the investigation of solid lubrication coats on MoS_2 base (All-Union Scientific Research Institute of the Petroleum Industry, VNII NP -209, -212, -213, -229, and -230) on friction under atmospheric conditions and in deep vacuum at low (-90-196 °C) and room temperatures. The gaseous products separating on friction were analyzed on the MSKh-3A mass-spectrometer located in the vacuum chamber. The

1/2

USSR

KURILOV, G. V., et al., Zavodskaya Laboratoriya, Vol 39, No 1, 1973, pp 48-50

longevity of VNII NP —212 coat was found to remain unchanged in deep vacuum at room and low temperatures and its friction process is accompanied by separation of the same masses as at +25 °C. On friction of the VNII NP —212 coat with carbamide resin, close mass-spectrograms at low and room temperatures resulted. Two figures, one table, six bibliographic references.

2/2

KURILO, L. F.

SO: JPRS 54539
23 NOV 71

UDC: 618.146-006.04-018.15

CHANGES IN THE MITOTIC CYCLE IN THE PRESENCE OF MALIGNIFICATION OF THE EPITHELIUM OF THE CERVIX UTERI

Medicine/Morphology

Article by I.A. Kazantseva, L.F. Kurilo, Institute of Human Morphology, USSR Academy of Medical Sciences, ~~Moscow, Moscow~~, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 10, 1971, pp 60-63]

Changes in the mitotic cycle, which are an early sign of malignification have now been experimentally investigated on cell cultures (Levan and Hinzle), in transferable tumors (I.A. Alov, 1965), in the process of chemical carcinogenesis (A.F. Vasil'yeva), after treatment with oncogenic virus (I.A. Alov et al.), as well as on some tumors of man (I.A. Kazantseva, 1966, 1968; N.P. Krut'kovskaya).

In spite of the many features common to malignificant in the mitotic cycle (increased mitotic activity, increased number of metaphases and number of pathological mitoses), there may be distinctive changes in tumors of different histogenesis. They consist, in particular, of the quantitative predominance of some forms of mitotic pathology. For example, trigroup metaphases which differ from the ordinary ones by the presence of chromosomes in the polar region arise, according to some researchers, the most often at early stages of carcinoma of the cervix uterus and, perhaps, are induced by estrogens ([illegible] and Cartier; Hamperl; Fox and Engelberg, and others).

In this investigation we studied mitosis in the multilayer squamous epithelium of the normal cervix uterus, in the presence of benign proliferative processes (epidermization of pseudoerosion), and malignification. Special attention was devoted to a comparison of mitotic indices of the epithelium at different stages of the neoplastic process: at the stage of preinvasive carcinoma (in situ) and the stage of invasive carcinoma.

Biopsies of the vaginal portion of the cervix served as our material; they were divided into four groups: the first consisted of multilayer squamous epithelium from the margins of pseudoerosia (9 cases; control); the second consisted of proliferating multilayer squamous epithelium lining the erosive glands in the presence of epidermization of pseudoerosions (15 cases); the third consisted of carcinoma in situ (11 cases); the fourth was invasive squamous cell carcinoma (14 cases).

Selected Translations of
Metallurgy JPRS 58611
30 Mar 73 - from Fizika
Metallov i Metallovedeniye
Vol 34, #6, 1972

UDC 539.215:620.181

THERMAL STABILITY OF THE MICROSTRUCTURE OF THE Al--Al_3Ni EUTECTIC COMPOSITION

Yu. P. Kurilo, A. I. Somov, and A. S. Tortika, Physics Engineering Institute of the Ukrainian SSR Academy of Sciences, submitted to press 15 March 1972

pages 1291-1293

The high-temperature stability of the reinforcing phase in the eutectic composition Al--Al_3Ni, obtained in a wide range of rates of growth, was experimentally investigated. The dependence of the dispersivity of the reinforcement upon the temperature and the annealing time of the composition was found. The behavior of the macrostructure characteristics of the composition (grains, colonies) at increased temperatures was studied.

The production of a number of materials having unique electrophysical and thermophysical, magnetic, optical, and mechanical properties is associated with controlled crystallization of the eutectics [1]. The temperature region of applicability of eutectic compositions depends upon the stability of their structure and increased temperatures. By means of a controlled change of such crystallization parameters as the rate of advance of the crystallization front and the temperature gradient in the melt [2, 3] we may control the dimensions, shape, distribution, and even the volumetric fraction of dispersed phase particles in alloys of the eutectic type. Subsequent annealing of the composition may change the morphology and degree of dispersivity of the phases and, in the final analysis, the properties of the material, especially in those cases when these properties have an extreme relative to the structural characteristics indicated.

KURILO, Yu.P

USSR UDC: 621.372.831.4-762

KURILOV, G. V., SAZONOV, V. P., ANTOKHINA, N. V.

"On the Resonance Frequencies of Modes in Energy Coupling Windows of the 'Jar' Type"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 9, pp 36-44 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B219)

Translation: The jar system used in SHF power tubes for coupling out energy is a flat dielectric window in the middle of a circular waveguide connected on both sides to rectangular waveguides. A disadvantage of the system is the possibility of breakdown of the window on resonance frequencies of modes allowed by the system; this requires proper selection of the working range. An important factor which has its effect on resonance frequencies is the reactivity of the coupling between circular and rectangular guides. This effect is analyzed. It is shown that such a coupling eliminates degeneration of the dominating mode, resulting in additional resonance. The reactivity of the junction shifts resonances of H modes toward shorter waves. Recommendations are given on selecting the working range. Eight illustrations, one table, bibliography of five titles. N. B.

1/1

③

In directed hardening the growth of the phases on a plane crystallization front in a steady-state regime occurs, as a rule, with the formation of low-index, and this means low-energy interphase discontinuities (interfaces), which increases the resistivity of the material to the structural changes in subsequent annealings. This was observed experimentally in systems of Al--Al_2Cu [4] and Al--Al_3Ni [5].

In this work the investigation of the effect of the crystallization conditions on the microstructure of the eutectic Al--Al_3Ni and its stability at increased temperatures is continued. The kinetics of the thermal enlargement of the particles of the Al_3Ni phase in structures formed in a wide range of rates of crystallization of the eutectic melt were studied.

An alloy of eutectic composition (6.25% Ni by weight) was prepared from elements of purity 99.9995% Al and 99.99% Ni. The specimens were obtained by the Chokhral'skiy method in a vacuum of $\sim 10^{-5}$ torr. The variable crystallization parameter is the rate of withdrawal of the crystal from the melt. The specimens had the shape of rods with a diameter of 4 millimeters and a length of 100 millimeters. Six series of specimens were obtained at withdrawal rates of 6, 72, 163, 342, 697 and 1472 millimeters per hour.

The methodology of the treatment of the specimens for metallographic analysis is described in reference [2].

The specimens were annealed in a vacuum resistance furnace at a pressure of $\sim 10^{-5}$ torr and at temperatures of 508, 575 and 608°C (± 2°); the annealing time varied from 25 to 100 hours.

Since the basic effect in the annealing of the alloy being investigated is the coalescence of the fibers of the $Al^{3}Ni$ phase, the measure of the effect collected was the magnitude of ρ / ρ_0, the ratio of the number of fibers per unit of area of the cross section of the specimens after annealing to the number of fibers before annealing. This is easiest, and, which is the main thing, it is an accurately measured quantity. With respect to it, in a case of necessity, it is not difficult to calculate the diameter of the fibers and the distance between them.

Acc. Nr: AP0055909 Abstracting Service: 0-10 INTERNAT. AEROSPACE ABST. Ref. Code: UR0065

A70-25943 # Investigation of the efficiency of the VNII NP-213 solid lubricating coating (Issledovanie rabotosposobnosti tverdogo smazochnogo pokrytiia VNII NP-213). G. V. Kulikov, L. N. Sentiurikhina, I. M. Liuburskii, and V. F. Udovenko (Vsesoiuznyi Nauchno-Issledovatel'skii Institut Neftianoi Promyshlennosti, Moscow, USSR; Akademiia Nauk Ukrainskoi SSR, Fiziko-Tekhnicheskii Institut Nizkikh Temperatur, Kharkov, Ukrainian SSR). *Khimiia i Tekhnologiia Topliv i Masel,* vol. 15, no. 3, 1970, p. 49-51. 12 refs. In Russian.

Experimental investigation of the service life and friction coefficient of a solid lubricating coating (not further specified, but appearing to contain molybdenum disulfide and silicon) as a function of the load, sliding rate and vacuum level. Test were performed with a film (20 microns) deposited on the surfaces of a sliding contact at a pressure of 2 atm. The efficiency of the coating at high-temperatures in air was also studied. It is found that the friction coefficient decreases with increasing load both in dry and humid air and in vacuum. At high sliding rates and high loads, the temperature and friction coefficient increase and the service life decreases. In vacuum, the service life is 4 to 8 hr at a relative humidity of 50 to 70 percent and 13 to 14 hr in dry air. V.P.

1/1

CK //

REEL/FRAME
19841236

UDC: 621.396.677

USSR

VERSHKOV, M. V., YELISEYEV, A. A., KURILOV, I. N.

"A Log-Periodic Dipole Antenna"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 294543, Division H, filed 18 Oct 68, published 30 Mar 72, p 242

Translation: This Author's Certificate introduces a log-periodic dipole antenna made up of two half-structures. As a distinguishing feature of the patent, the design is simplified by connecting a short-circuited line with an arm length of (0.10-0.15)λ in the distribution line at a distance of (0.20-0.25)λ from the feed points, where λ is the average wavelength of the band.

Acc. Nr.: AP0042376 K Ref. Code: UR0203

JPRS 50162

Geomagnetic Activity and E_s Formation

(Abstract: "Geomagnetic Activity, E_s Formation and Ionospheric Absorption of Radio Waves," by G. A. Zherebtsov and V. A. Kurilov, Siberian Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Absorption; Moscow, Geomagnetizm i Aerononiya, Vol X, No 1, 1970, pp 160-162)

In clarifying the dependence of appearance of the E_s layer on geomagnetic activity the authors made a statistical analysis of data from ionospheric soundings made at seven stations during 1965. The locations of the stations made it possible to clarify the latitudinal variation of the dependence of the appearance of E_s with $f_0E_s \geqslant 5$ Mc/sec on the K_p index. In determining this dependence the authors selected days with increased geomagnetic activity (D) for which $\sum K_p \geqslant 18$ and days which were relatively magnetically quiet (Q) with $\sum K_p \leqq 9$. The number of D and Q days for each season of the year was 40. A positive correlation of the appearance of E_s with $f_0E_s \geqslant 5$ Mc/sec and magnetic activity is observed for latitudes close to the zone of maximum occurrence of auroras and for stations situated at the center of the polar cap zone in summer. For stations in the middle latitudes there is a negative correlation in summer, whereas during winter and the equinoctial period there is no de-

/2

1/2

Reel/Frame
19760333

AP0042376

pendence. Usually in the high latitudes at the time of auroras and particularly in the morning hours after an aurora there is radio wave absorption. However, total absorption, particularly at the group of polar cap stations, is observed during magnetically quiet periods. When there is an undisturbed magnetic field the probability of absorption in the zone of the maximum recurrence of auroras is rather insignificant and in the morning hours attains 10-15 percent in comparison with 30-40 percent during magnetically disturbed periods. For latitudes situated within the zone of maximum recurrence of auroras the percentage of absorption is insignificant on both D and Q days. There is a maximum in the seasonal variation of auroras during the equinoctial period. During the considered period there was not a single case of absorption at middle-latitude stations.

19760334

2/2

USSR UDC 612.882"52"

VOLODINA, A. V., and KURILOVA, L. M., Laboratory for the Physiology and Pathology of the Sense Organs, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR

"Circadian Rhythm of Human Cold Receptors"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 7, 1971, pp 7-8

Abstract: The number of cold-sensitive spots on the upper arms of human subjects increased from 0900 hours, peaking at 1700 hours and declining from 2100 hours until 0100, when the smallest number was recorded. Stimulation of the cold receptors elicited reactions related to the same time of day. The number of active cold receptors increased in response to heating and decreased in response to cooling.

1/1

UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 020

TITLE--THERMAL THERMOAESTHESIOMETER -U-

AUTHOR-(02)-KURILOVA, L.M., TIKHOMIROV, I.I.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 6, PP 123-124

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SKIN PHYSIOLOGY, TEMPERATURE MEASUREMENT, MEDICAL APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0577

STEP NO--UR/0219/70/069/006/0123/0124

CIRC ACCESSION NO--AP0131200

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0131200

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMAL THERMOAESTHESIOMETER PERMITS TO STUDY THE THERMAL RECEPTION OF THE SKIN BY USING THE METHOD OF FUNCTIONAL MOBILITY. ITS PORTABILITY AND RELATIVE INDEPENDENCE AS IT WORKS FROM A BATTERY GIVES IT DEVINITE ADVANTAGES AS COMPARED TO THE USUAL MODELS OF THERMOAESTESIOMETERS. FACILITY: INSTITUTE OF NORMAL AND PATHOLOGICAL PHYSIOLOGY, ACADEMY OF MEDICAL SCIENCES OF THE USSR MOSCOW.

UNCLASSIFIED

Lasers and Masers

USSR K UDC 621.373.029.67

KORolev, F. A., KURIN, A. F.

"Cyclotren Resonance Maser with Fabry-Pérot Resonator"

Moscow, Radiotekhnika i elektronika, No 10, 1970, pp 2143-2149

Abstract: The cyclotron resonance maser is defined as a maser in which electrons oscillating in a static magnetic field or crossed electric and magnetic fields form the active element. This paper gives the results of theoretical and experimental research into such a maser with a Fabry-Pérot resonator of the type used in laser technology, where the axis of the spiral electron beam coincides with the direction of the static magnetic field. The experimentation was conducted in the centimeter wavelength range. A diagram and an explanation of the experimental equipment are given, the asymmetrical electron gun producing the spiral beam being a plane diode placed in the magnetic field such that the uniform electric field in the gun is intersected by the magnetic field lines of force at some angle. The electron source is a heated cylindrical cathode six mm in diameter. The method and results of the experiments are given.

1/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THEORY OF A CYCLOTRON RESONANCE MASER -U-

AUTHOR--KURIN, A.F.

K

COUNTRY OF INFO--USSR

SOURCE--MOSKOVSKII UNIVERSITET, VESTNIK, SERIIA III-FIZIKA, ASTRONOMIIA, VOL. 11, JAN.-FEB. 1970, P. 47-52

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CYCLOTRON RESONANCE, MASER, RESONATOR, ELECTRON OSCILLATION, STANDING WAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1627 STEP NO--UR/0188/70/011/000/0047/0052

CIRC ACCESSION NO--AP0054473

UNCLASSIFIED

CIRC ACCESSION NO--AP0054473

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF A LINEAR THEORY OF A CYCLOTRON RESONANCE MASER, WHOSE RESONATOR CONTAINS A STANDING WAVE FIELD FORMED BY SUPERPOSITION OF TWO OPPOSITE TEN WAVES PROPAGATING AT AN ARBITRARY PHASE VELOCITY ALONG A STABLE MAGNETIC FIELD. IT IS SHOWN THAT COHERENT EMISSION IS ALSO POSSIBLE IN THE CASE WHERE NONRELATIVISTIC ELECTRONS OSCILLATING IN THE MAGNETIC FIELD AT A FREQUENCY CLOSE TO THE CYCLOTRON FREQUENCY OR ONE OF ITS HARMONICS INTERACT WITH A FORWARD OR A BACKWARD WAVE. AN EXPRESSION FOR THE ELECTRIC CURRENT CAPABLE OF EXCITING OSCILLATIONS IN THE RESONATOR IS DERIVED ON THE BASIS OF A KINETIC EQUATION THAT TAKES INTO ACCOUNT THE RELAXATION RESULTING FROM A FINITE ELECTRON DWELL TIME IN THE RESONATOR. IN ITS SHOWN THAT, CONTRARY TO WAVEGYIDES WHERE THE INTERACTION TIME IS INFINITE, EVEN NONDECELERATED WAVES CAN BE AMPLIFIED IN THE MASER RESONATOR. FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

Lasers & Masers

USSR K UDC 621.378.323

KURIN, A. F.

"Toward a Theory of the Cyclotron Resonance Maser"

Moscow, Vestnik Moskovskogo Universiteta, Seriya III - Fizika, Astronomiya, Vol 11, No 1, Jan/Feb 70, pp 47-52

Abstract: A linear theory of a cyclotron resonance maser is presented: The field in the resonator of the maser in the area of the beam has the form of a standing wave formed by the superposition of two opposing TE-waves propagating with an arbitrary phase velocity along the direction of the constant magnetic field. It is noted that the basis of cyclotron resonance masers is induced radiation in an active medium consisting of electrons rotating in a magnetic or in crossed magnetic and electric fields; upon the interaction of electromagnetic waves with these oscillating electrons at a frequency close to cyclotron or one of its harmonics, there occurs a grouping of electrons and coherent radiation of the resulting bunches. The possibility of generation in the case of non-relativistic electrons under interaction both with direct and with the reverse waves is shown and an expression is given for the starting current. The degree of the effect of various grouping mechanisms in the field of the TE-wave on negative absorption is compared in resonators where the interaction time is finite and in waveguides.

1/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ELECTRICAL CONDUCTIVITY AND COEFFICIENTS OF SELF DIFFUSION OF THE LITHIUM CHLORIDE KU-2 (CATION EXCHANGER) SYSTEM IN RELATION TO

AUTHOR-(03)-MALTSEV, G.I., KURIN, M.N., TIKHOMIROV, I.A.

K

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(2), 258-61

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRIC CONDUCTIVITY, LITHIUM CHLORIDE, CATION EXCHANGE RESIN, DIFFUSION COEFFICIENT, CALCULATION/(U)KU2 CATION EXCHANGER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0198 STEP NO--UR/0364/70/006/002/0258/0261

CIRC ACCESSION NO--AP0114584

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114584

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TABLE OF THE COND. OF THE SYSTEM WITH LICL CONCNS. OF 0.1-6N AT 10DEGREES INTERVALS AT 10-90DEGREES IS PRESENTED. COND. AT VARIOUS CONCNS. AND TEMPS. DIFFERED LITTLE FOR 3 DIFFERENT RANGES OF PARTICLE SIZE OF THE CATION EXCHANGER. SELF DIFFUSION COEFFS. FOR THE SYSTEM WERE CALCD. BY USING THE NERNST EINSTEIN EQUATION, AND AGREED WITH LITERATURE VALUES. FACILITY: TOMSK. POLITEKH. INST. IM. KIROVA, TOMSK, USSR.

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133712

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS ARE CONSIDERED OF AN EXPERIMENTAL STUDY OF THE BWO CONDITIONS TOGETHER WITH ACCOMPANYING DIFFRACTION RADIATION. THE LATTER WAS FOUND IN GENERATORS OF DIFFRACTION RADIATION (GDR) WHEN OPERATING IN A SHORTWAVE MILLIMETER RANGE UNDER AN INTERRRUPTED REGIME. A COMPARISON WAS MADE OF THESE OPERATING CONDITIONS WITH A 'PERFECT' REGIME OF DIFFRACTION RADIATION.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--USE OF SEDIMENTATION ANALYSIS FOR STUDYING THE EFFECT OF THE MEDIUM ON THE DISPERSION OF COPPER POWDERS -U-

AUTHOR-(03)-KOMAROVA, I.A., KURINNOY, V.I., FIGUROVSKY, N.A.

K

COUNTRY OF INFO--USSR

SOURCE--POROSHKOVAYA MET. JAN. 1970, (1), 6-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER POWDER, ELECTROLYTIC COPPER, SEDIMENTATION, BIBLIOGRAPHY, ELECTRODEPOSITION, COMMINUTION, ACETONE, METHYL ALCOHOL, CARBON TETRACHLORIDE, TOLUENE, CYCLOHEXANE, DIELECTRIC CONSTANT, CHEMICAL DISPERSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1312 STEP NO--UR/0226/70/000/001/0006/0009

CIRC ACCESSION NO--AP0109396

UNCLASSIFIED

CIRC ACCESSION NO--AP0109396

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISPERSING EFFECT OF THE MEDIUM ON A SUSPENSION OF ELECTROLYTIC CU POWDERS DEPOSITED FROM CUSO SUB4 SOLUTIONS AT 25DEGREESC WAS STUDIED ON THE BASIS OF CLASSICAL SEDIMENTATION ANALYSIS. MEDIA TESTED INCLUDED WATER, METHYL ALCOHOL, FURFURAL, ACETONE, CCI SUB4, CYCLOHEXANE, AND TOLUENE. THE DEGREE OF DISPERSION WAS DIRECTLY RELATED TO THE DIELECTRIC CONSTANT OF THE MEDIUM: E.G., FOR WATER THE MEAN PARTICLE SIZE WAS 7 MM, AND FOR TOLUENE 2 MM.

1/2 011 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--NEW MACHINE FOR PRODUCING RUBBER CEMENT -U-

AUTHOR-(05)-KURINNYI, A.YE., KANANIN, B.G., KASHKOVSKIY, S.S., BAGRINTSEV,
I.I., BELTYUKOV, A.V.
COUNTRY OF INFO--USSR

K

SOURCE--KHIM. NEFT. MASHINOSTR. 1970, (2) 42-3

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--RUBBER ADHESIVE, RUBBER WORKING MACHINERY, MATERIAL MIXING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1505 STEP NO--UR/0314/70/000/002/0042/0043

CIRC ACCESSION NO--AP0112499
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NOVEL MIXING APP. WAS DEVELOPED FOR THE PREPN. OF RUBBER CEMENT FROM RUBBER MIXT. NO 109 DISSOLVED IN GASOLINE. A CROSS SECTIONAL DIAGRAM OF THE APP. AND ITS MODE OF OPERATION ARE PRESENTED. THE NEW APP. REDUCED THE PREPN. TIME FROM 3-6 HR TO 40-60 MIN.

UNCLASSIFIED

USSR

UDC 621.382.2

ALMAZOV, A.B., KULIKOVA, YE.V., RYZHIKOV, I.V., KUZNETSOVA, YE.N., KURINNYY, V.I.

"Capacitance Of Abrupt Electron-Hole P-N Junction Allowing For Charge Of Mobile Carriers"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 3(53), pp 15-23 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B121)

Translation: Approximations are considered which make it possible to obtain analytical expressions for the capacitance of the space charge layer, allowing for the shielding effect of the free carriers with a low level of injection during negative and small positive biases. For consideration of an abrupt p-n junction, equal doping is assumed for both regions, disregarding the compensation of the impurity atoms and the recombination of the carriers in the space charge region. The above assumption is also correct for a high level of injection, but with the condition that the voltage at the p-n junction at some kT/q is less than the contact potential difference. An experimental test was conducted on unsymmetric p-n junctions formed by ionic doping in crystals with a concentration of acceptors $(2.5 \div 4.0) \cdot 10^{12}$ cm^{-3}; the thickness of the n-region amounted to 0.6 micron, and the concentration of donors changed from 10^{20} to 10^{12} cm^{-3}. 2 ill. 14 ref. V.M.

USSR

UDC 539.216.2.001.5

GUSEV, V. M., GUSEVA, M. I., [redacted], TITOV, V. V., TSYPLENKOV, V. S., BARANOVA, Ye. K., STREL'TSOV, L. N.

"Investigation of the Properties of an Oxide Film Obtained by Atomic Oxygen Ion Bombardment of Silicon and Use of Such a Film for Protecting a PN Junction"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1462-1467

Abstract: The paper presents the results of a study of the thickness of oxide films as a function of the conditions of silicon bombardment by atomic oxygen ions, as well as the composition and dielectric properties of the films and the space charge in them. The protective properties of oxide on structures with ion-injected PN junctions are studied. Most of the experiments were done on N-type and P-type silicon with resistivity of 7-10 Ω·cm. The specimens were irradiated in the chamber of the ILU-2 ion accelerator. It was found that the thickness of the oxide film increases in proportion with the energy of the ions and decreases as the ion current density increases. The dielectric strength of the insulating layer was $(3-10)\cdot 10^5$ V/cm. It is shown that the composition of the film depends on subsequent annealing.

1/2

USSR

GUSEV, V. M., et al., Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1462-1467

By using ion oxidation to protect ion injected PN junctions, the authors were able to synthesize high-voltage low-power diodes with a breakdown voltage of 3.3 kV.

2/2

USSR UDC 621.382.2.001.5

AKIMOV, Yu. S., GUSEV, V. M., KURINNYY, V. I., RYZHIKOV, I. V.

"An Investigation of the Injection Characteristics of Symmetric PIN Diodes Made by the Method of Ion Implantation"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1917-1926

Abstract: The paper presents a review of the principal drift and diffusion theories of double injection as applied to symmetric PIN structures. The width of the I-region varied over a range of $W/L_p = 0.3-15$. Precise knowledge of the parameters of the separate regions of P^+PN^+ structures made by ionic doping of high-resistance P-silicon enabled the authors to make a detailed quantitative and qualitative comparison between the experimental characteristics and those predicted by the drift theory and chiefly by the diffusion theory of double injection. It is shown that the Hall diffusion model is inadequate for analyzing the data on PIN structures, and a detailed study is made of the Kleinman section of the current-voltage curve. Experimental data are compared with the theory with regard to nonequilibrium impurity distribution in the heavily doped layers. A drift section pre-

1/2

USSR

AKIMOV, Yu. S. et al., Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1917-1926

ceding the diffusion section is observed on the Rashba-Tolpygo-Lampert-Rose current-voltage curve for long diodes ($W/L_p > 2$), and a detailed study is made of this section. Six figures, one table, bibliography of 34 titles.

2/2

USSR UDC 681.11.032:621.317

KURITSKIY, A. M., VOROB'YEVA, G. N.

"Experimental Study of the Efficiency of Escapement Mechanisms"

Tr. NII Chas. Prom-sti. [Works of Scientific Research Institute of the Clock Industry], 1971, No 8, pp 89-96, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, 1972, No 5, Abstract No 5.32.584).

Translation: A method and results are described from a study of the efficiency of 42 millimeter (stopwatch) and 26 millimeter (wristwatch) escapement mechanisms. The nature and influence of efficiency are studied with changes in such factors as moment of inertia of the balance wheel, rigidity of the hairspring, oscillating period, as well as the influence of a change in the oscillating amplitude resulting from a change in the drive torque and design factors (number of teeth of the escapement wheel, type of escapement) on escapement efficiency. A brief analysis is presented of the nature of the dependence of escapement efficiency on various types of energy losses in the escapement mechanism.

1/1

USSR

UDC 535.322:535.824.3

KURITSYN, A. M., All-Union Scientific Research Institute of Motion Pictures

"Reflectometer for the Control of Reflectors of Lighting Fixtures"

Moscow, Tekhnika Kino i Televideniya, No 7, Jul 72, pp 18-21

Abstract: A reflectometer of the RKO type for measuring the reflection coefficient of small areas of flat and curved surfaces of different curvatures is described. The reflectometer is a modification of a laid on photometer with an integrating sphere, it is a portable device, weighing 5.6 kg, in which are disposed the measuring head with 2m cable, the supply unit, a flat reflecting plate for calibration purpose, and a flexible cord for switching on. The working with the reflectometer is discussed and its optical schema and electric circuit are described by reference to diagrams. The RKO reflectometer passed the laboratory tests in the Lighting Engineering Laboratory of the All-Union Scientific Research Institute of Motion Pictures and Photography. The field tests at the Kiev plant "Kinap" showed that with the RKO reflectometer curved surfaces of all types of reflectors now in production and design can be controlled. Four illustr., four biblio. refs.

1/1

USSR

UDC 621.373.826

SKVORTSOV, B. V., FIRSOV, V. M., MIUSKIN, V. YE., KURITSYN, I. A.

"Gas Discharge Pulse Tube for Pumping Lasers"

USSR Author's Certificate No 292568, filed 1 Nov 67, published 30 Nov 71 (from RZh-Radiotekhnika, No 5, May 72, Abstract No 5D286P)

Translation: A gas discharge pulse tube for pumping lasers has been patented the bulb of which is executed from quartz glass with alloying substances injected in it. In order to vary the structural characteristics of the tube radiation in such a way that it will correspond to the absorption (excitation) spectrum of the active substance and increase the energy supplied to the active substance without increasing its operating temperature, the sesquioxides of elements of the lanthanide group are used as the alloying substances.

1/1

AA0040630 K UR 0482

3-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

235533 PLASTICS GRINDER comprises spinnerettes and a knife and during the grinding of viscous material sticking and clogging of the blades of the knife is prevented by constructing the knife of flexible plates, and providing stop pins along the peripheries of the spinnerettes.

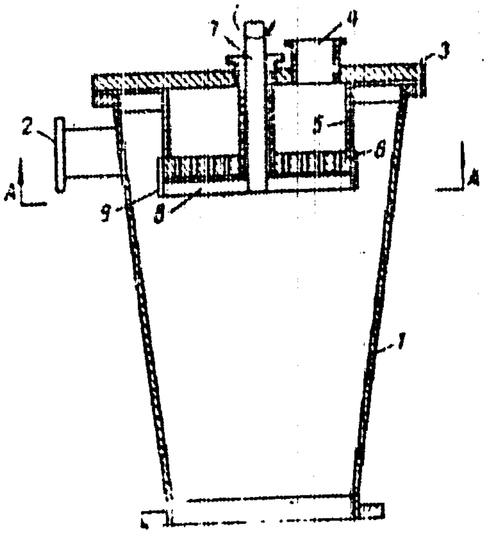
AUTHORS: Kuritsyn, I. F.; and Turovskiy, A. P.

1/2

1

19750189

AA0040630



3.4.67. as 1145883/29-33, KURITSYN, I.F. et al.
(30.6.69) Bul 5/6.1.69. Class 50c, Int. Cl. B 02c.

19750190

1/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--KINETICS OF M CHLOROANILINE ACYLATION WITH BENZOYL CHLORIDE IN NONAQUEOUS MEDIA -U-

AUTHOR--KURITSYN, L.V.

K

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 172-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, BENZOYL CHLORIDE, ANILINE, CHLORINATED ORGANIC COMPOUND, CHEMICAL REACTION RATE, ACTIVATION ENERGY, ORGANIC SOLVENT, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0792 STEP NO--UR/0153/70/013/002/0172/0174

CIRC ACCESSION NO--AT0132890

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AT0132890

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM MEASUREMENTS AT 25-45DEGREES, THE FOLLOWING REACTION RATE COEFFS. KAPPA TIMES 10 PRIME3 AT 35DEGREES, ACTIVATION ENERGIES (CAL), LOG EXPONENTS IN THE REACTION RATE EQUATION, AND VALUES OF MINUS DELTAS SUB298 FOR THE BENZOYLATION OF M,CHLOROANILINE IN VARIOUS SOLVENTS ARE DETD.: (SHOWN ON MICROFICHE). THE OBSD. REGULARITIES ARE ATTRIBUTED TO A MECHANISM INVOLVING THE REACTION OF A MOL. OF AMINE WITH AN ACTIVATED COMPLEX CONSISTING OF BZCL AND THE SOLVENT. ONLY IN CCL SUB4 DOES THE MAGNITUDE OF THE VELOCITY CONST. APPEAR TO DEPEND ON THE INITIAL CONCN. OF REAGENT.

FACILITY: IVANOV. KHIM.-TEKHNOL., INST., IVANOVO, USSR.

UNCLASSIFIED

USSR

KURITSYN, Yu. G.

"Systems of Spherically Symmetrical Random Quantitites"

Tr. Mat. Fak. Voronezh. Un-t [Works of Mathematics Department, Voronezh University], 1972, No 6, pp 52-58 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V25, by S. Maloshevskiy).

Translation: A symmetrical Banach space E of random quantities (r. q.) is studied. The system of r. q. $\{n_k\}_1^n$ is called a system of spherically symmetrical r. q. (s.-s. r. q.) if all linear combinations $\sum_{k=1}^{n} c_k x_k$, for which $\sum_{k=1}^{n} c_k^2 = 1$, are identically distributed. This work establishes certain characteristic properties of systems of s.-s. r. q. In particular, it is proven that the system of r. q. $\{x_k\}_1^n$ having joint density, $f(x)$, $x \in R^n$, is spherically symmetrical when and only when for any unitary operator U defined in R^n for almost all x (according to tha Lebesgue measure) the equation $f(Ux) = f(x)$ is correct. Furthermore, the relationship is established between

USSR

Kuritsyn, Yu. G., Tr. Mat. Fak. Voronezh. Un-t, 1972, No 6, pp 52-58.

subspace $E_n \subset L_2$ extended in the system of s.-s. r. q. and the spheres of symmetrical spaces containing E_n. The case of a denumerable system of s.-s. r. q. is also studied. In this case, each r. q. is distributed according to a weighted normal rule.

USSR

KURITSYN, Yu. G.

"The Dispersions of the Best Linear Unbiased Estimate of Mathematical Expectation of a Random Process"

Tr. Mat. Fak. Voronezh. Un-t. [Works of Mathematics Department of Voronezh University], 1972, No 3, pp 20-22 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V224 by A. Kholevo).

Translation: Let m_T^* be the best unbiased estimate of mean m of observations of the process $x(t) = m + y(t)$, t [0, T], where $Ey(t) = 0$, $Ey(t)y(s) = B(t - s)$. The following theorem is proven: $D(m_T^*) > 0$ if and only if for a certain $\varepsilon > 0$ the function $B(t) - \varepsilon$ is positively defined in [0, T].

Abstractor's Note. A more general fact is known: let θ_T^* be the best unbiased estimate of parameter θ of the process

$$x(t) = \theta m(t) + y(t);\ Ey(t) = 0,\ Ey(t)y(s) = B(t, s);$$

$D(\theta_T^*) > 0$ if and only if for a certain $\varepsilon > 0$, function $B(t, s) - m(t)m(s)$ is positively defined (for example, see RZhMat, 1963, 10V258).

1/1

USSR

UDC 519.24

KURITSYN, Yu. G., PETUNIN, Yu. R.

"The Theory of Linear Estimates of the Mathematical Expectation of a Random Process"

Teoriya Veroyatnostey i Mat. Statist. Mezhved. Nauch. Sb., [Theory of Probabilities and Mathematical Statistics. Indepartmental Scientific Collection], 1970, No 3, pp 80-92, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V199 by the authors).

Translation: The linear unbiased estimates of mathematical expectation of a random process are studied. The concept of the optimal estimate is introduced, and a criterion for the optimal estimate is produced. It is demonstrated that for Gaussian processes, a linear unbiased estimate with least dispersion is optimal in the class of all linear unbiased estimates. A similar result is produced for a sequence of symmetrically dependent random quantities.

1/1

USSR UDC 538

KURITSYNA, YE. F., and KAO IAN, Moscow State University imeni M. V. Lomonosov

"Anisotropy of the Plane Hall Effect in Monocrystalline Films of Nickel and Nickel Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 508-511

Abstract: The plane Hall effect was studied on epitaxial films of nickel and nickel alloys (NiFe, NiCu) grown on the (001) plane of an LiF single crystal. The films were prepared by thermal evaporation in a vacuum of $2\cdot10^{-5}$ mm Hg and deposition on the fresh cleavage of the LiF at ~380°C. In order to study the anisotropy in the (001) plane, a series of films (nine) was prepared in the form of elongated rectangles, the long sides of which were oriented at different angles (θ = 0 to 45°) to the [100] direction. Samples, along the long sides of which the current was passed, were placed in an electromagnetic field sufficient to magnetize film to saturation. While the film was slowly rotated in the field lying in its plane, the transferse electromotive force generated as a function of the angle θ between the current and the field direction was recorded. To determine the nature of the anisotropy, curves $A_\theta/A_0 = f(\theta)$ were plotted, where A_0 is the amplitude of the emf force for the sample, through which the current was passed along the [100] direction, and A_θ

USSR

KURITSYNA, YE. F., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 508-511

is the amplitude of the emf for the sample having different angle θ between the direction of the flowing current and [100]. Values of A_θ/A_0 decreased with the current direction deviation from the plane (001) from the tetragonal to diagonal axis. The highest decrease of A_θ/A_0 was observed for nickel film when the angle θ varied from 0 to 45°. The anisotropy of the Hall plane effect was observed for all alloys studied. The value of the transverse emf in the direction [110] was lower than in the direction [100]. Small additions of Fe and Cu decreased the anisotropy of the plane Hall effect, and this decrease was much stronger in the case of Fe than in the case of Cu. For films with 15% Fe the anisotropy was minimal but it increased with higher amounts of Fe. The course of the dependence A_0/A_{45} on composition and the fact that the anisotropy was minimal for alloys with zero magnetostriction led to the assumption that anisotropic stresses in films, which originate in their magnetic fields due to magnetostriction, cause the anisotropy of the plane Hall effect. Measurements of the resistance anisotropy to magnetization of films with cubic lattice showed that anisotropy of the plane Hall effect and the magnetization anisotropy are

2/3

USSR

KURITSYNA, YE. F., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 508-511

interconnected, and determination of one of these effects makes it possible to judge the other. The nature of the plane Hall effect and the resistance anisotropy to magnetization is the same phenomenon. In other words, they are governed by identical physical factors.

3/3

Acc. Nr: AP0043692 **Ref. Code:** UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 3, pp 1002-1006

PLASMA INSTABILITY IN THE FIELD OF A WEAK TRANSVERSE WAVE

Kuriy, A. Yu.

Instability of a plasma located in the electromagnetic field of a transverse wave is studied with respect to build-up of nonpotential high frequency oscillations possessing a frequency close to the frequency of the external wave. The threshold value of the external field strength is found and the maximum of the increment after the build-up threshold is determined.

1/1

REEL/FRAME
19770096

1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--IMPROVING PUBLIC HEALTH ECONOMICS -U-

AUTHOR-(03)-KURIYANOV, M.K., GALITSKAYA, YE.P., SIMONOV, V.A.

K

COUNTRY OF INFO--USSR

SOURCE--GOR'KIY; MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 3, 1970, PP 14-17

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--PUBLIC HEALTH, ECONOMIC DEVELOPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0673 STEP NO--UR/0753/70/000/003/0014/0017

CIRC ACCESSION NO--AP0132796

UNCLASSIFIED

CIRC ACCESSION NO--AP0132796

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ECONOMIC REFORM BEING CARRIED OUT IN OUR COUNTRY ALSO AFFECTS THERAPEUTIC AND PREVENTIVE MEDICAL ESTABLISHMENTS TO A CONSIDERABLE EXTENT. IN ACCORDANCE WITH ORDER NO 265 OF THE MINISTER OF HEALTH USSR, DATED 31 MARCH 1967, AN EXPERIMENT IS BEING CONDUCTED IN A NUMBER OF MEDICAL ESTABLISHMENTS INVOLVING EXPANSION OF THE RIGHTS OF THEIR DIRECTORS AND INTRODUCTION OF THE PRINCIPLES OF ECONOMIC INCENTIVES TO STIMULATE THE WORK OF PERSONNEL DIRECTED TOWARD RAISING THE QUALITY AND EFFECTIVENESS OF MEDICAL SERVICE, TOWARD DISCOVERY OF INTERNAL POTENTIAL IN USE OF THE WORK OF MEDICAL PERSONNEL, IN EXPENDITURE OF FINANCIAL AND MATERIAL RESOURCES, AND ALSO CREATION OF A FUND FOR MATERIAL INCENTIVES OF STAFF MEMBERS FOR THE HIGH QUALITY OF THEIR WORK.

2

USSR UDC 620.1

TRET'YACHENKO, G. N., VOLOSHCHENKO, A. P., KONEV, V. A., KRAVCHUK, L. V., KURIYAT, R. I., (Kiev)

"Influence of Salts of Sea Water in a Gas Stream on Thermal Stability of Turbine Blades"

Kiev, Problemy Prochnosti, No 12, Dec. 1972, pp 40-43.

Abstract: Methodological problems are studied, related to the study of the influence of sea salt in a gas stream on the load-bearing ability of the nozzle blades of marine gas turbine engines with thermal cycling of loading. Certain quantitative data are produced on the influence of sea salts on the nature of development of thermal fatigue cracks. The stress-strain state of the blade and its changes during a thermal loading cycle are studied.

1/1

USSR UDC: 536.532

KURKA, O. T., SITNITSKIY, Yu. I., CHUCHMAN, T. S.

"Automatic Compensation Contactless Temperature Meter for Rotating Surfaces"

Kontrol'no-Izmerit. Tekhnika. Resp. Mezhved. Nauch.-Tekhn. Sb. [Testing and Measurement Techniques. Republic Interdepartmental Scientific and Technical Collection], 1972, No 12, pp 89-92 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 12, 1972, Abstract No 12.32.959, by V. S. K.).

Translation: An automatic meter for measurement of the temperature of rotating surfaces is described, which operates on the principle of compensation of energy radiated by the object of measurement by energy radiated by a nonmoving comparison surface, the heater power of which is automatically set according to the signal of a null indicator in a tracking system. The automatic temperature meter developed includes four units (U): 1) the sensor U, including the comparison surface and electric heater, thermal cell (null indicator) and thermocouple measuring the comparison surface temperature; 2) the electronic U for amplification of the signals of the thermal cell and control of the reversing motor of the power U; 3) the power U, regulating the comparison surface heater power; 4) the secondary device -- a series-produced automatic potentiometer. 2 figures, 3 biblio. refs.
1/1

USSR

UDC 537.311.33(047.1)(47):548.25

KUROCHKIN, V.A., KURKHINEN, G.I., KORZO, V.F.

"Thin Dielectric Films In Modern Electronics"

V sb. Elektronika i yeye primeneniye--Electronics And Its Applications--Collection Of Works), Moscow, Izd-vo VINITI, 1971, pp 69-123

Abstract: This survey is devoted to problems of the theory of conductivity, the technology and the uses of thin dielectric films. In the first chapter some special features are considered of the processes of charge transfer in structures with dielectric layers, specifically in metal-dielectric-semiconductor structures. Special sections are devoted to tunneling, the Schottky and Poole-Frenkel effects, as well as the mechanism for formation of negative resistance. Particular attention is given to disordered systems. In the second chapter recent advances in the technology of preparing thin dielectric films are generalized. In particular, methods are considered of cathode sputtering and pyrolysis of hetero-organic compounds, and also the technology of preparing films of some new materials. Data are presented on the use of dielectric films as passivating and sealing layers. In the third chapter problems of the

1/2

USSR

KUROCHKIN, V. A., et al., Elektronika i yeye primeneniye--Electronics And Its Applications--Collection Of Works), Moscow, Izd-vo VINITI, 1971, pp 69-123

creation of active elements on the basis of dielectric layers are set forth. Particular attention is given to bipolar elements with negative resistances which possess a high switching rate and in some cases a storage effect. The principal parameters are presented of elements based on semiconductor glasses. 6 fig. 3 tab. 218 ref.

2/2